WDIN Announces the Global Wildlife Disease News Map

In our globalized world, disease can spread in unprecedented time and space. Keeping abreast of wildlife disease occurrences and trends can be challenging, despite their significant impact on domestic animal and human health. The NBII Wildlife Disease Information Node (WDIN) <http://wildlifedisease.nbii.gov> works with wildlife health professionals to develop tools and resources to bridge this communication gap.

Recently, WDIN added an exciting new feature, the Global Wildlife Disease News Map

<http://wildlifedisease.nbii.gov/wdinNewsDigestMap.jsp>. This unique online map makes it possible, for the first time, to follow the latest reports of nearly 50 diseases and other health conditions, such as pesticide and lead poisoning, that threaten the health of wildlife, domestic animals, and humans in a worldwide context. The map displays articles on the detection and spread of wildlife disease, as well as other conditions that affect the health of wildlife, based on their geographical location.

The Global Wildlife Disease News Map is populated by news stories compiled as part of WDIN's suite of news services. The WDIN staff combs through news sources and combines disparate information about wildlife disease and other wildlife health-related topics into the Wildlife Disease News Digest <http://wildlifedisease.nbii.gov/wdindiseasenews.html>. The Digest is then made available to readers in several easy-to-use formats. This suite of news service tools includes a

Bishop Museum and the NBII Demonstrate the Future of Taxonomy
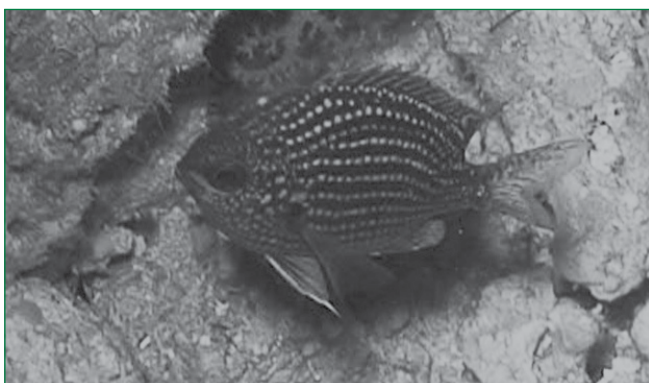
Chromis "abyssus" in its natural habitat, at ~120m in Palau.

This year has been exciting for taxonomy, which took a leap forward with the publication of five new species of the damselfish genus *Chromis*. The NBII helped lead the way.

The paper, "Five new species of the damselfish genus *Chromis* (Perciformes: Labroidei: Pomacentridae) from deep coral reefs in the tropical western Pacific," was

published in *Zootaxa* on the 250th anniversary of modern zoological nomenclature <http://www.mapress.com/zootaxa/2008/f/zt01671p031.pdf>. It demonstrates what the future of taxonomy could be in this world of the Internet, where supplemental information concerning taxa are just a few mouse clicks away.

This was done by using and cross-linking the various biodiversity informatics standards and repositories. In other words, all taxon names mentioned in the document—including all new species—were registered in ZooBank (the world's register of animal names).

LSIDs or Life Science Identifiers (the standard type of Globally Unique Identifiers, or GUIDs as adopted by TDWG [Taxonomic Data Working Group] and GBIF [Global Biodiversity Information Facility]) were used for all registered ZooBank names. The LSIDs were represented in the published PDF version of the article as embedded links in the ZooBank Web site for each registration record. All descriptive data related to specimens of the new species, as well as comparative data for other species, were marked up using SDD (Structure of Descriptive Data, a TDWG standard) so the raw data could be downloaded directly as XML and/or other formats.

The descriptions were marked up with TaxonX and taXMLit (emerging standards for marking up taxonomic publications with XML tags), or a merged version of the two. All holotype specimens of new species for which we have tissue samples received a DNA "barcode," appropriately registered with the fish Barcode of Life (FishBOL). All images (those published in the article and others not included) were deposited with embedded links in the PDF file to the Morphbank images or image collections. All cited specimens have embedded links to their respective museum online databases (where available) and/or via the GBIF portal.

All bibliographic citations (including citations for original descriptions of all mentioned taxon names) were linked to the Biodiversity Heritage Library (BHL). Citations of taxon names were represented in the form of taxon concepts, with associated TNC/TCS (Taxonomic Names and Concepts Group of TDWG) XML. Video clips of these new species are accessible via embedded links within the PDF version of the document

All taxon names were cross-linked to GBIF data records for associated species. In other words, the online edition of this document has been formatted with embedded links to additional online resources to enhance access to taxonomically relevant information, and to demonstrate the utility of international standards for biodiversity informatics.

How has the new approach been received? The paper received 12,559 hits the first month of its publication, an average of 405 hits a day—a record for papers in *Zootaxa*.

As per standard practice with *Zootaxa*, the paper-printed version will be the Code-compliant nomenclatural act of establishing the availability of the new names. However, the PDF version of the document has many embedded links, so full names, images, videos, publications, and so forth are just a mouse-click away, bringing the practice of taxonomy one step closer to the electronic world.

This work demonstrates how new electronic resources and emerging standards can come together to make a whole that is much greater than the sum of its parts. By serving or mirroring most of the data content through the Web portals being developed at Bishop Museum in partnership with the NBII Pacific Basin Information Node and the Pacific Biodiversity Information Forum member to GBIF, the NBII is putting into practice the promise of biodiversity informatics. 🐟

Chromis "abyssus" specimen.

SAIN Participates in One-Day Nationwide Amphibian Training Event

Students, parents, and wildlife enthusiasts of all ages converged on Norris Elementary School in Norris, TN, on Saturday, May 3, to attune their ears to the unique calls and cries of East Tennessee amphibians. The NBII Southern Appalachian Information Node (SAIN) partnered with the school and others to ensure FrogWatch 2008: Record the Ribbit was an educational, consciousness-raising success *and* fun for one and all!

The day was aimed at celebrating frogs, raising frog and toad awareness, and training citizen-scientists to collect data about area frogs and toads – and thus contribute to amphibian conservation.

Norris Elementary was just one of many locations nationwide focused on training all interested parties in tracking this country's frog and toad populations. Citizens from coast to coast honed their skills in identifying frogs and toads in their respective areas and logged into the Record the Ribbit Web site to report their findings.

At Norris Elementary, SAIN staff, school officials, and a broad range of volunteers hosted a variety of training efforts. Students attending the event

(From left to right) Dara Wade, Jean Freeney, and Shelaine Hetrick prepare the specimen table.

received a science monitoring kit complete with a CD of East Tennessee frog calls used by permission of Lang Elliott, NatureSound Studio, e-mail <lang@naturesound.com>.

The day's events included critter exhibits and tours of the school's wetland outdoor laboratory along with a range of games and activities, which included face painting, a perennial

favorite. Attendees registered for door prizes donated by SAIN Node Manager Jean Freeney. Prizes included Frog WebKinz (2), a digital voice recorder, *Last Child in the Woods* by Richard Louv (3 copies), and a copy of *Earth in the Balance* signed by former Vice President Al Gore.

The National Wildlife Federation provided a PowerPoint presentation with information about 15 species found in East Tennessee. Information included species habitat, range distribution, physical description, images, and a description of the call. Frog call audio files were linked to the presentation.

"It was great fun in a worthy cause," said Freeney. "I'm so glad that SAIN could play a role in this important event."

You can find out more about the day's happenings by visiting the SAIN Web site at <http://sain.nbii.gov/portal/community/Communities/Geographic_Perspectives/Southern_Appalachian/Animals_and_Plants_of_the_Region/Amphibians/Amphibian_Monitoring/Record_the_Ribbit_2008/>.

Local children explore the wetland near Norris Elementary School.

Southeast Watershed Forum Launches the Community Resource Mapper
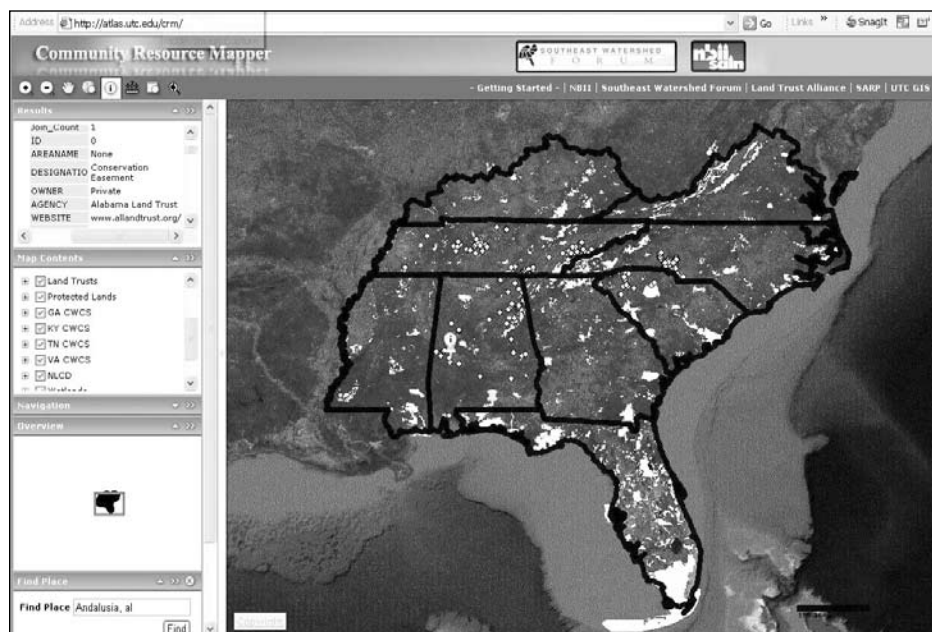
The Southeast Watershed Forum, in partnership with the NBII Southern Appalachian Information Node and the University of Tennessee–Chattanooga, is making it easier for state and local land-use planners to integrate natural resources data into their planning efforts.

The forum recently launched the Community Resource Mapper, which allows multiple GIS information layers to be overlaid at the county, watershed, and state levels. The geospatial database and Web interface were developed by the University of Tennessee–Chattanooga and provide access to satellite imagery, protected lands, impaired streams, State Wildlife Action Plans priority habitats, wetlands, and more. The forum will incorporate the Mapper into its regional training workshops as a tool for land-use planners. The site is accessible at <http://www. watershed-assistance.net/mapper>.

The forum designed the Community Resource Mapper to be a user-friendly visual tool to help local planners, as well as other resource managers, land trusts, and conservation groups, see where

their vital "green" infrastructure is located so they can shape growth and development away from natural resources.

The Mapper includes privately protected lands in the database, collected from 87 participating land trusts. Working in partnership with the southeastern office of the Land Trust Alliance, the forum secured geospatial data (where available) on the location of their local holdings. The forum saw river and watershed organizations, land trusts, and resource management agencies working independently in the same areas. By visually documenting where privately protected land is located, the forum hopes these entities will begin to collaborate to protect key natural resource areas. Eventually, each land trust will be able to update its holdings annually, so the Mapper can track the increase and location of land-protection activity.

In addition, the forum's partnership with the Southeast Aquatic Resources Partnership, a coalition of state and federal resource agencies, provided early mapping of State Wildlife Action Plans,

which document the areas of priority and threatened habitat that must be protected to avoid future losses.

The Southeast is growing quickly, with millions of acres of once rural, forested land being transformed into highways, malls, and housing developments. This transformation offers many economic opportunities; but if not well-planned, it could dramatically increase the local costs of servicing this new growth. It could also destroy the natural resources and community character that drew people to the region in the first place.

Community tree canopy, wetlands, and riparian buffers save communities money in stormwater treatment and water-quality protection. Protecting prime habitat, forests, and farmlands fosters outdoor activities and community character. Visualizing the location of protected lands can help a city connect corridors through greenway planning. Seeing the location of impaired streams can help a city buffer those streams and redirect growth patterns.

The long-term goals of the Community Resource Mapper are to:
- Integrate natural resource protection into the land-use planning process.
- Encourage more habitat protection and collaborative planning/ management.
- Improve the overall management of public and private lands by coordinating activities among groups involved in land protection.
- Encourage communities to protect habitat as part of comprehensive plans.
- Provide a baseline to measure the growth in land/habitat protection over time.
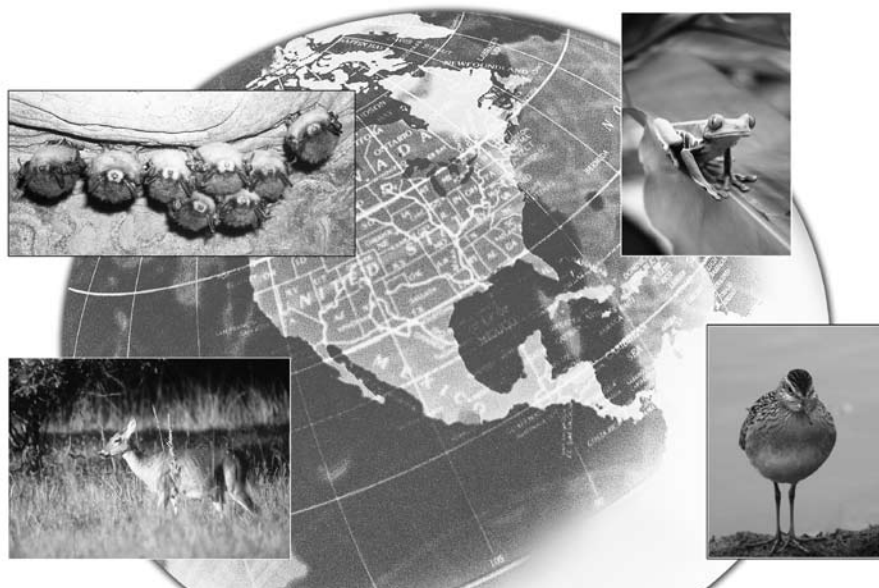
Web-based publication that reads like a newspaper, a widget convenient for those who use personal home pages (e.g., iGoogle or My Yahoo), the more conventional e-mail alert, and an RSS feed for those who suffer from e-mail fatigue. The Global Wildlife Disease News Map represents the most recent addition to this family of WDIN news services.

Each news article is represented as a pushpin on the map. Clicking on a pushpin opens an information box that links back to the news story and shows the article's title, publication date, location, and a brief excerpt.

Apart from the utility of representing wildlife disease news geographically, the map is dynamic, allowing users to limit the news stories displayed on the map using the provided filters. The categories within each filter allow the user to read news about a specific topic, species, or place. Another useful feature is the map's ability to tap information from WDIN's large and growing electronic library of wildlife disease information, such as journal articles, images, and maps.

To learn more about the Global Wildlife Disease News Map, explore the Disease Map Web site (see

Putting Wildlife Disease News on the Map

Photo credits: bat: Al Hicks, New York Dept. of Environmental Conservation; bird: USGS Alaska Science Center; deer and frog: NBII Image Gallery, John J. Mosesso.

Wildlife diseases worldwide described in the new Global Wildlife Disease News Map – and the species they can affect -- include (starting top left, moving clockwise): bat (dying bats in the Northeast remain a mystery); frog (fungus threatens frogs in several states); bird (bird flu plagues Seoul, causes outbreaks in other cities); and deer (bovine tuberculosis confirmed in Manitoba).

below). Visitors will find additional information in the "About Map" and "Map Tips & Help" tabs.

For advanced map users and map makers, the map layer is available both as a geoRSS feed <http://feeds.feedburner.com/wdinNewsDigestGeoRSS> and KML, the Network Link layer for Google maps <http://wildlifedisease.nbii.gov/wdinNewsDigestGoogleEarth.kmz>.

The current map is the second version that WDIN has produced. Look for updated versions with new functions in the future.

The emergence and spread of diseases transmissible between species have created an unprecedented link between wildlife health, human health, and domestic animal health professionals. The news digest provides a foundation for those important conversations among a wide range of people interested in monitoring wildlife disease, including state and federal wildlife managers, animal disease specialists, veterinarians, medical professionals, and educators, as well as private citizens.

In addition to its news services, WDIN collaborates with a wide variety of public and private entities to improve access to important wildlife disease data. Because of the global significance of these diseases, WDIN encourages others to become involved. Please contact us at <wdin@usgs.gov>. Questions and comments are always welcome.
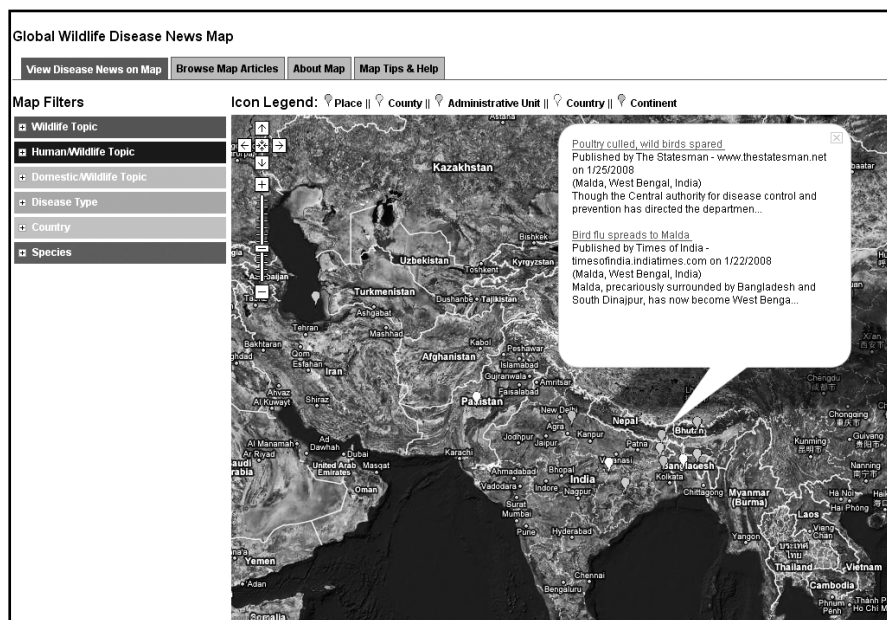
EKey Provides an Electronic Tool for Identifying Freshwater Fishes

One of the resources made available through the NBII Mid-Atlantic Information Node is EKey, an electronic tool for identifying freshwater fishes. This application aims to serve the widest possible range of users in hopes of enhancing the enjoyment and understanding of our aquatic heritage.

Amateurs, students, and professionals can benefit from EKey. Through observation of teaching students ichthyology laboratory courses, it has been demonstrated that people approach freshwater fish identification in different ways. EKey offers several computer-assisted approaches to finding useful information about the freshwater fishes of Virginia. Users can browse species by taxonomy, use a dichotomous key to identify a species, or conduct text-based searches that index species information.

Information available through EKey includes scientific and common names, physical descriptions, and life history information. Future enhancements will include the ability to conduct fish shape-based searches and upload a species image and find matches from the current database.

*Shortnose sturgeon (*Acipenser brevirostrum*).*

EKey guides the user through an electronic version of the dichotomous key to identify a freshwater fish. The system presents the user with a question and two choices, called couplets. Each couplet is designed to collect details about the specimen in question. The couplets pertain to various physical attributes, such as the shape of fins, the number of gill openings, or the jaw length.

The answer to a particular question determines what question is asked next. Many of the couplets provide graphical aids for assessing the physical features. As the user proceeds through the series of couplets, the system narrows down which species match the chosen characteristics. Ultimately, the user is presented with a species profile page that gives details on the fish species, such as its common and scientific names, its physical description, similar species, a species photo, habitat, food habits, reproductive habits, and references.

Pertinent terms in the profile are hot-linked to provide quick glossary definitions. The user can also view a full glossary of terms. Each definition is indexed so if another glossary term appears in a definition, the term is hot-linked so the user can jump instantly to a definition for that term.

For those who have considerable familiarity with the characteristics associated with families, genera, and species of freshwater fishes, EKey offers the option to browse by taxonomic classification.

Future plans include the development of a shape-based search option. The user will be able to choose from a list of stylized fish shapes and enter text keywords. This shape search will provide a quick (albeit less detailed) alternative to the dichotomous key. Using image analysis and matching algorithms, this visual search will represent a new level of achievement in fish identification technology.

For more information, contact Lila Borge Wills at <lborge@vt.edu > or Bill Herrington at <bherrington@vt.edu>.
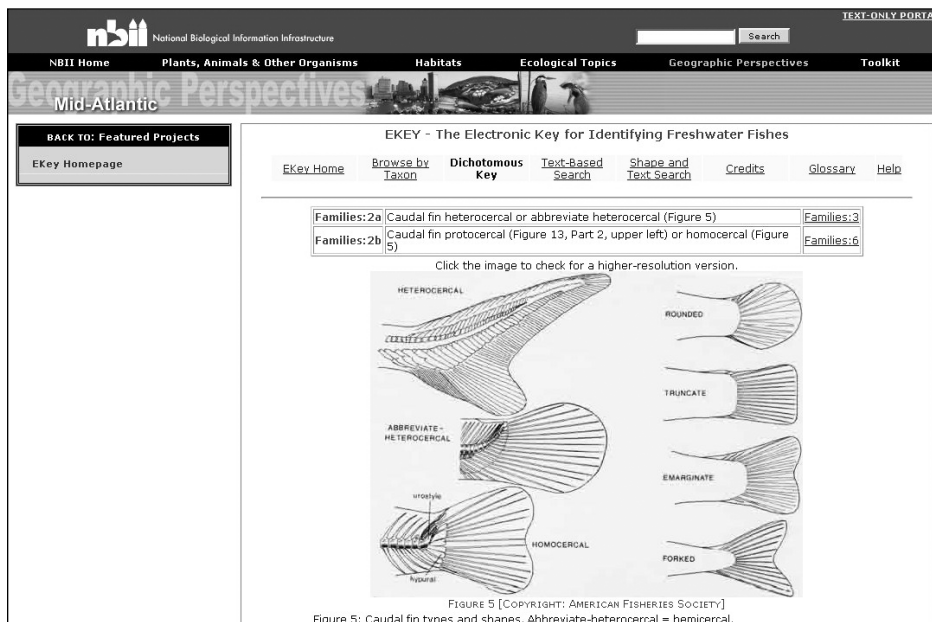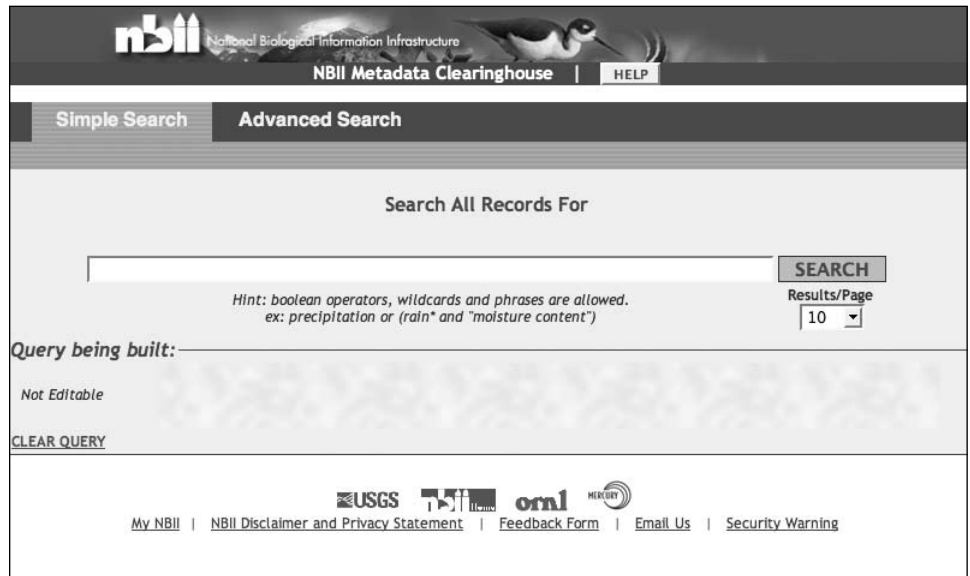
Advances in Metadata: Redesigned NBII Clearinghouse Interface and New Version of Metavist Software Now Available

Have you visited the NBII Clearinghouse recently? If not (and why not?!), you will see some significant changes. The NBII, in collaboration with Oak Ridge National Laboratory (ORNL), has recently released an enhanced version of the NBII Clearinghouse with powerful new search capabilities <http://mercury.ornl.gov/nbii>.

Let's explore the new Clearinghouse interface by thinking about a search scenario: A researcher is interested in grizzly bear data in Montana. To find relevant metadata records describing such research, he can click on the "Advanced Search" area, enter the keyword "grizzly bear," and create a bounding box on a map of Montana. All the records in the Clearinghouse relevant to grizzly bears and Montana will appear on the Search Results page.

Suppose this researcher has too many good records to choose from, and he would like to narrow his search. He can do this immediately by using specially designed "filters" on the Search Results page. Our researcher can click on a specific data provider to show only records provided to the Clearinghouse by that organization. Our researcher could also filter by the specific type of metadata records he is looking for. For example, since he is only interested in maps and data pertaining to grizzly research (and not publications or software and tools), he can click on the "Maps and Data" filter to further narrow his results. When viewing specific records, our researcher can choose between an abbreviated view or the traditional Federal Geographic Data Committee view. Additionally, the Clearinghouse is poised to display ISO19115 metadata records once the standard is finalized.

When our researcher is satisfied with his results, he can bookmark

The redesigned NBII Clearinghouse interface brings greater functionality to metadata searches.

the page in "Internet Favorites" to return to at a later time, or he can e-mail the search results. If he is interested in seeing future results from this particular grizzly bear query, an RSS feed can be set up to alert him to new records submitted to the Clearinghouse. The search is very successful for this researcher because he goes on to find new collaborators by contacting researchers he discovered in the metadata records who are working on projects similar to his own. This could happen to you! Try a search today!

The NBII would like to thank ORNL for its outstanding work creating the new Clearinghouse interface. Giri Palanisamy successfully led his team at Oak Ridge on the project and coordinated with Mike Frame and Viv Hutchison from the NBII to achieve the results you see today. Contact Viv at <vhutchison@usgs.gov > for further information about the Clearinghouse or to provide constructive comments.

More Metadata News

In metadata software news, a new version of the free metadata software

program Metavist has been released by the USDA Forest Service. Version 1.6 fixes a number of bugs, provides a new stylesheet (courtesy of the state of Vermont), and adds importing and exporting of taxonomic classifications. Further, Metavist now handles very large collections of species. It can save selected taxonomic sub-hierarchies to file, or attach hierarchies contained in a file to the metadata element. Imported taxonomic hierarchies can come from Metavist or the Integrated Taxonomic Information System (ITIS). Instructions for how to import from ITIS are provided with the software.

On the technical side, in addition to continuing support for Microsoft's .Net Framework version 1.1, Metavist now supports .Net Framework version 2.0. The features and interface are exactly the same. The CD also provides both Frameworks for installation, if needed. The new version of the software can be obtained as a CD at <http://www.nrs.fs.fed.us/pubs/2737>.

Remember: "Don't Duck Metadata!"

The Southeast Watershed Forum is a nonprofit organization that assists local communities, agencies, organizations, and industries to better protect land and water resources and consults on issues related to growth, economic viability, and watershed protection in the Southeast. It also serves as a regional clearinghouse for watershed information and provides training through its special reports, conferences, and workshops. 🐢

NBII in the News

• An article titled "Bald Eagle Survey Yields Record Sightings," which appeared in the March 8, 2008, edition of *Fosters.com*, makes reference to <http://ocid.nacse.org/nbii/eagles>, the Midwinter Bald Eagle Count Web site. This site, currently hosted by the Northwest Alliance for Computational Science & Engineering and supported by the Bird Conservation and Pacific Northwest Information nodes, provides access to Midwinter Bald Eagle Survey results, including raw counts and summarized trend information on bald eagle populations in the contiguous United States. These recent analyses and results were announced by the U.S. Geological Survey (USGS) in January 2008, coinciding with the 30th year anniversary of the Midwinter Bald Eagle Survey. *Fosters.com* is the Web site of *Foster's Daily Democrat*, a six-day morning newspaper published in Dover, NH, covering southeast New Hampshire and southwest Maine.

• A peer-reviewed article titled "Vision of a Cyberinfrastructure for NonNative, Invasive Species Management" was published in the March 2008 issue of *BioScience*. The article was collaboratively written by Annie Simpson, Node Manager for the NBII Invasive Species Information Node, and partners at the National Institute of Invasive Species Science: Jim Graham (senior author), Alycia Crall, Catherine Jarnevich, Greg Newman, and Tom Stohlgren. The paper describes how the Internet is being used to create a comprehensive invasive species cyber-infrastructure that is capable of accessing data effectively, creating models of invasive species spread, and distributing this information for use by scientists, decision-makers, and the general public.

• Tom Hermann – perhaps best known as Chief Knowledge Manager for the USGS Biological Informatics Office in Reston, VA (which serves as the National Program Office for the NBII) – is also a photographer. His penguin image was used in the March 2, 2008, article, "African penguin population drops 40% - cause unknown," which can be found at <http://news.mongabay.com/2007/0302-penguins.html>; and his cheetah image was used in a March 29, 2008, blog posting under the heading "Cheetah Attack" <http://www.jungletrader.blogspot.com/>. Both of these images can be found in the NBII Digital Image Library (DIL) <http://images.nbii.gov>. Tom also oversees the development of the DIL, a growing library of diverse, well-documented images of nature and the environment. The majority of the images in the DIL are in the public domain or are freely available for use in articles such as those mentioned here.

• The March 2008 issue of the *Organization of Fish and Wildlife Information Managers (OFWIM) newsletter* <http://www.ofwim.org/docs/2008/OFWIM_March2008.pdf> features "Seabirds as Indicators of Environmental Health: Citizen Scientists Monitor Seabird Mortality Throughout the Atlantic Coast of the United States," an article by SEANET program director, Julie Ellis of Tufts University's Center for Conservation Medicine. SEANET is a cooperative project led by Tufts University's Center for Conservation

Photo credit: Thomas A. Hermann

Close-up of a male cheetah lying on a dirt road while looking towards the photographer.

Invasive Species Toolbox

IPAMS Citizen Science Network Under Development

The Invasive Plant Atlas of the MidSouth (IPAMS) is beginning its first season of training volunteers to collect and submit location information for 40 invasive plant species in the states of Alabama, Arkansas, Louisiana, Mississippi, and Tennessee. Coordinated by Dr. John Madsen of the GeoResources Institute at Mississippi State University, IPAMS' other outreach and extension activities include developing an efficient Early Detection and Rapid Response (EDRR) system for invasive plants, developing best management practices workshops, and developing an online mapping system. Research activities include conducting systematic regional vegetation surveys to assess the distribution of key invasive plants, developing models for predicting the occurrence of target species based on land use and land cover, and evaluating the relative effectiveness of professional versus volunteer surveys. See <http://www.gri.msstate.edu/ipams/> for more information.
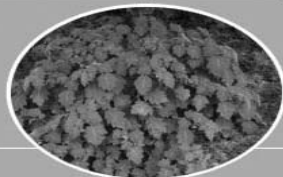
NBII Invasive Species Working Group (ISWG) Web Pages

The invasive species cross-node working group meets via teleconference at 4:00 p.m. Eastern Time on the last Thursday of the month to discuss issues related to invasive species information management. The ISWG has recently posted online a summary of the presentations given during 2007. There is also a list of the group's members, with links to information about their affiliated organizations where applicable. To join the ISWG, please e-mail <asimpson@usgs.gov> or <esellers@usgs.gov>. The ISWG Web page is <http://edrr.nbii.gov/portal/community/Communities/Ecological_Topics/Invasive_Species/About_the_Node/Working_Group/>.

GISIN Hosts Internet Publication for Open Review and Comment

The Global Invasive Species Information Network (GISIN) has been working for several years to create an online system to share invasive species information across diverse invasive species databases on the Web. Another part of the GISIN's mission is "to provide a platform for sharing invasive species information

Another part of the GISIN's mission is "to provide a platform for sharing invasive species information at a global level, via the Internet and other digital means."

at a global level, via the Internet and other digital means." Therefore the GISIN is hosting an Internet publication for open review and comment called *Invasive Alien Flora of India*, by Dr. C. Sudhakar Reddy, G. Bagyanarayana, K. N. Reddy, and Vatsavaya S. Raju. Please access the publication here: <http://www.gisinetwork.org/IndiaInvasivePlants/index.html>. If you have any suggestions or comments about this publication, please e-mail Dr. Reddy at <csreddy_nrsa@rediffmail.com>.

Medicine, which aims to link marine ecological health and human health by monitoring seabird mortality along the Atlantic coast of the United States. The article highlights a Web-based reporting system (housed at <http://wildlifedisease.nbii.gov/seanet>), which SEANET partnered with the NBII Wildlife Disease Information Node and NBII Northeast Information Node to create, using the NBII Geospatial Information Framework (GIF). The system enables volunteers to enter data directly on the Web, allowing quick compilation of results and streaming to an interactive GIS application for the assessment of risk factors and mortality patterns.

•   The subject of our lead story on page 1 (above the fold) has been picked up in a variety of media outlets. More placements undoubtedly will emerge between the time *Access* spring 2008 goes to press and when the issue is distributed. That said, coverage we know of so far includes: an article in the Friday, May 9, issue of *Government Computer News* titled "Geospatial tool tracks disease outbreaks globally" (see <http://www.gcn.com/online/ vol1_no1/46241-1.html>); the May 8 issue of *Physorg.com* in a feature titled "Web tool puts wildlife diseases on the map (see <http://www.physorg. com/news129482929.html>); the May 8 issue of *Capital Times* of Madison, WI, where you can read "New online map tracks wildlife disease outbreaks" (see <http://www.madison.com/tct/ news/285404>); and the May 5 issue of *Environment News Service,* which offers "Mapping Wildlife Diseases May Help Prevent Their Spread" (see <http://www.ens-newswire.com/ens/ may2008/2008-05-05-093.asp>).

Open Forum on Metadata Registries Recently Held Down Under

The eleventh annual Open Forum – Metadata Down Under: Metadata, Semantics, and Interoperability in Practice – was held May 19-22, 2008, in Sydney, Australia. The USGS NBII Program, the National Cancer Institute, and the U.S. Environmental Protection Agency were among the event's sponsors. This year's Open Forum was hosted by The Australian Bureau of Statistics as well as Standards Australia.

"The latest forum focused on the interoperability of metadata and semantics in prototype and operational systems."

"Open Forums" are a recent series of international conferences held around the globe (last year's Open Forum was held in New York City) about topics related to metadata, registries, semantics, interoperability, and related standards. They are also cross-cutting metadata events – a metadata bazaar, with many metadata aspects and perspectives represented. The latest forum focused on the interoperability of metadata and semantics in prototype and operational systems. Sectors where information and data interchange and re-use are critical were included, such as healthcare, transportation, manufacturing, statistics, and the environment.

The central goal of this Open Forum was to share and advance knowledge and experience about standards, the technologies that build upon them, and implementation experiences. Through plenary and track sessions, tutorials and posters, the conference updated participants on existing standards, described implementations and operational systems, identified lessons learned, and outlined new standards research and directions to support emerging needs. Participants left the conference knowing more about the use of standards to promote data and semantic interoperability and the lessons learned from implementations.

The Forum focused on standards of interest to the biodiversity and environmental communities including the ISO/IEC 11179 for metadata registries, ISO 19115 and other geospatial standards, the ISO TC37 family of standards related to terminology development, and W3C standards such as RDF and OWL.

Gail Hodge gave a presentation, authored by Vivian Hutchison, on the "NBII's New Metadata Interface: Preparing for ISO." She discussed the NBII's role in biological metadata with the coming of the ISO standard for geospatial metadata. She also described the newly redesigned NBII Metadata Clearinghouse interface, which creates a very effective search experience for users. International organizations were encouraged to contribute metadata to the NBII.

The more than 80 conference attendees included practitioners, standards developers, software developers, and researchers from the public and private sectors. Attendees had interests in metadata management and the use of international standards relating to data and terminology, with some having specialties in such areas as data search/retrieval, Web searching, and enterprise data management.

For more information about this or upcoming Open Forum conferences, contact Gail Hodge, an NBII Metadata Management consultant, by e-mail at <ghodge@iiaweb.com> or by phone at 865/742-5430. You can see the Open Forum Web site at <www. metadataopenforum.org>.

International Connections

NBII Supports U.S.–Affiliated Pacific Islands

The NBII, through the Pacific Basin Information Node (PBIN) and the Pacific Biodiversity Information Forum, continues to be active in helping support biodiversity science and management in the U.S. Pacific. The U.S. Geological Survey Biological Informatics Office (USGS-BIO) participated in the annual meeting of the Pacific Island Committee, sponsored by the U.S. Department of Agriculture Forest Service (USDA FS), February 19–23 on Rota, in the Commonwealth of the Northern Marianas Islands.

The Pacific Island Committee (PIC) is made up of USDA FS Region 5, the Forest Service Institute of Pacific Island Forestry, the United States, the state of Hawaii, and affiliated U.S. islands in the Pacific. The meeting served as an opportunity to announce the NBII's intent to focus on Micronesia as a first step in upgrading the Pacific Protected Areas database. In addition, discussions took place about making the NBII's PBIN a one-stop shop for biological data for Pacific Islands, and to this end, the USDA FS will provide PBIN with its geospatial data from the region beginning in June 2008.

International Council for Scientific and Technical Information

The Annual General Assembly Meetings and Public Conference of the International Council for Scientific and Technical Information (ICSTI) will be held June 11-14, 2008, in Seoul, Korea. ICSTI offers a unique forum for interaction between organizations that create, disseminate, and use scientific and technical information (STI). ICSTI's mission cuts across scientific and technical disciplines, as well as international borders, to give member organizations the benefit of a truly global community. ICSTI also provides a forum for all constituencies in business, industry, academia, government, and the public to share experience and best practices in information sharing and management among their international peers.

This year's public conference and annual meeting will be hosted by the Korea Institute of Science and Technology Information (KISTI). Invited speakers will come from Korea, Japan, China, the USA, and Europe. The "New Frontiers in Scientific and Technical Information" public conference will address key issues in new trends in scholarly communication, STI as a dynamic engine for R&D, and scientific data management and integration. At the General Assembly meetings, BIO's Deputy Director, Mr. Tom Lahr, will lead discussions on the theme and topics for the 2009 Public Conference and will participate in discussions on the implementation of ICSTI projects and goals for 2008-2009.

The USGS-BIO will also participate in meetings of the WorldWideScience Alliance, consisting of 19 organizations which have created the new cross-portal federated Web search WorldWideScience.org <WWS.org>. As Co-Chair of the U.S. Science.gov Alliance Web portal, Mr. Lahr will represent Science.gov, an e-gov initiative, at meetings of this ICSTI-sponsored initiative. For additional information, please contact Tom Lahr <tom_lahr@usgs.gov>.

Global Biodiversity Observing System

USGS-BIO was invited by the non-government organization DIVERSITAS and the National Aeronautics and Space Administration to the Group on Earth Observations (GEO) to discuss and agree on a science plan and design an implementation strategy for the Global Biodiversity Observing System (GEO-BON, GEO Biodiversity Task BI-07-01). BIO's John Mosesso attended the meeting to participate in discussions on collecting, managing, analyzing, and sharing data on the status and trends of U.S. and global biodiversity. For additional information, please contact John Mosesso at <john_mosesso@usgs.gov>.

Earth, our home planet, has oceans of liquid water, and continents that rise above sea level. NASA scientists combined satellite photographs with surface data to create this detailed image of Earth's land masses and oceans. The swirling mass of clouds west of Mexico is a large hurricane.

Electronic or Print *Access*?

We want to remind readers that *Access* is available as both a printed publication and an electronic document. The location of the online version of *Access* is noted in the masthead (bottom of page 2) of each issue: simply go to <www.nbii.gov> →Toolkit → Publications Library.

If you would prefer to read the online version, just send an e-mail stating that to <ron_sepic@usgs.gov> and we'll remove your name from the *Access* mailing list. Next, we'll add you to our listserv for notifying *Access* readers when future issues are ready – with a link – so you'll be able to stay up-to-date on NBII developments without adding to your incoming snail mail. It's your call!

Upcoming Events of NBII Interest

American Institute of Biological Sciences 2008 Annual Meeting: Climate, Environment and Infectious Diseases, Washington, DC. — May 13–15

28th Annual Florida Native Plant Society Conference, Palmetto, FL. — May 15–18

3rd Fire in Eastern Oak Forests Conference, Carbondale, IL. — May 20–22

Southeast Exotic Pest Plant Council 10th Annual Symposium, Biloxi, MS. — May 20–22

National Conference on Urban Ecosystems, Orlando, FL. — May 28–30

Bee Pollination Ecology of Spring Wildflowers, Carmel Valley, CA. — June 6–8

11th Annual Coral Reef Symposium: Reefs for the Future, Fort Lauderdale, FL. — July 7–11

Freshwater Mollusk Conservation Society 2008 Workshop, Chattanooga, TN. — July 13–15

The Aquatic Plant Management Society, Inc., 48th Annual Meeting, Charleston, SC. — July 13–16

22nd Annual Meeting of the Society for Conservation Biology, Chattanooga, TN — July 13–17

National Marine Educators Association (NMEA) 2008 Conference, Savannah, GA. — July 21–24

2008 Universities Council on Water Resources/National Institutes for Water Resources Annual Conference, Durham, NC. — July 22–24

2008 Soil and Water Conservation Society Annual Conference, Tucson, AZ. — July 26–30

The Ecology and Evolution of Plant-Pollinator Interactions, Milwaukee, WI. — August 2–3

2008 Joint Meeting of the American Ornithologists' Union, Cooper Ornithological Society, and Society of Canadian Ornithologists, Portland, OR. — August 6–9